

=> d his

(FILE 'HOME' ENTERED AT 14:18:31 ON 29 DEC 2004)  
FILE 'CA' ENTERED AT 14:18:43 ON 29 DEC 2004  
L1 5427 S CALIXARENE OR CALIX(2A)ARENE  
L2 42119 S (LI OR LITHIUM) (6A) (DETECT? OR DETERMIN? OR MEASUR? OR MONITOR?  
OR ASSAY? OR ANALY? OR ASSESS? OR TEST? OR ESTIMAT? OR EVALUAT? OR  
EXAMIN? OR CHECK? OR SENSE# OR SENSING OR SENSOR OR IDENTIF? OR  
PROBE# OR PROBING OR QUANTIF? OR QUANTITAT?)  
L3 40 S L1 AND L2  
L4 380 S L1 AND(LITHIUM OR LI)  
L5 74 S L4 NOT L3 AND(AZACROWN OR CROWN)  
L6 306 S L4 NOT L5  
L7 71 S L1 AND(LITHIUM OR LI) (5A) (DESIGN? OR CREAT? OR PRODUC? OR  
EXTRACT?)  
L8 163 S L3,L5,L7  
L9 141 S L8 NOT PY>2002  
FILE 'BIOSIS' ENTERED AT 14:27:02 ON 29 DEC 2004  
L10 1 S L9  
FILE 'MEDLINE' ENTERED AT 14:28:24 ON 29 DEC 2004  
L11 2 S L9  
FILE 'CA' ENTERED AT 14:29:18 ON 29 DEC 2004  
L12 5527 S CALIXARENE OR CALIX(3A) (ARENE OR CROWN OR AZACROWN) OR CALIXCROWN  
OR CALIXAZACROWN  
L13 100 S L12 NOT L1  
L14 0 S L2 AND L13  
L15 13 S L13 AND(LITHIUM OR LI)  
L16 48 S L13 AND (ENGINEER? OR COMPLEX?)  
L17 20 S L12 AND ENGINEER?  
L18 56 S L15-17 NOT PY>2002  
FILE 'BIOSIS' ENTERED AT 14:38:46 ON 29 DEC 2004  
L19 3 S L18  
FILE 'MEDLINE' ENTERED AT 14:39:12 ON 29 DEC 2004  
L20 3 S L18  
FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 14:40:02 ON 29 DEC 2004  
L21 199 DUP REM L9 L18 L10 L19 L11 L20 (7 DUPLICATES REMOVED)

=> d l21 bib,ab 1-199

L21 ANSWER 39 OF 199 CA COPYRIGHT 2004 ACS on STN  
AN 136:183800 CA  
TI Ion complexation properties of **calix[6]arene** derivatives: I. 1,4-  
**calix[6]crown-4** derivatives  
AU Yang, Fafu; Chen, Yuanyin  
CS Department of chemistry, Wuhan University, Wuhan, 430072, Peop. Rep.  
China  
SO Supramolecular Chemistry (2001), 12(4), 445-450  
AB A series of 1,4-p-tert-butyl-calix[6]**crown-4** tetraesters, tetraamides,  
tetraacids with defined conformation I (X = CH<sub>2</sub>CH<sub>2</sub>, 1,2-C<sub>6</sub>H<sub>4</sub>; R =  
CH<sub>2</sub>CO<sub>2</sub>Et, CH<sub>2</sub>CO<sub>2</sub>Me, CH<sub>2</sub>CONHCH<sub>2</sub>CH<sub>2</sub>OH, CH<sub>2</sub>CO<sub>2</sub>H) were prepd., and their  
complexation properties towards metal ions and alkyl ammonium ions were

investigated systematically. I (X = CH<sub>2</sub>CH<sub>2</sub>, R = CH<sub>2</sub>CO<sub>2</sub>Et; X = 1,2-C<sub>6</sub>H<sub>4</sub>, CH<sub>2</sub>CO<sub>2</sub>Me) show high selectivity towards Na<sup>+</sup>, Li<sup>+</sup>, resp. and all I exhibit high complexation abilities towards Et<sub>2</sub>NH<sub>2</sub><sup>+</sup> cation.

L21 ANSWER 45 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 135:171370 CA

TI Synthesis and ion selectivity of tetrakis[(N,N-dialkylaminocarbonyl)methoxy]homocalix[4]arenes

AU Yamato, Takehiko; Iwasa, Toshiaki; Zhang, Fenglei

CS Department of Applied Chemistry, Faculty of Science and Engineering, Saga University, Saga, 840-8502, Japan

SO Journal of Inclusion Phenomena and Macrocyclic Chemistry (2001), 39(3-4), 285-294

AB An attempted O-alkylation of 6,13,22,29-tetra-tert-butyl-9,16,25,32-tetrahydroxy[3.1,3.1]metacyclophane with N,N-dialkylchloroacetamides in the presence of NaH, K<sub>2</sub>CO<sub>3</sub> or Cs<sub>2</sub>CO<sub>3</sub> gave only one pure stereoisomer, while other possible isomers were not obsd. In contrast, only an intractable mixt. was obtained when Na<sub>2</sub>CO<sub>3</sub> was used as base. The structural characterization of these products is discussed. The two-phase solvent extn. data indicated that tetrakis(N,N-dialkylaminocarbonyl) derivs. show strong alkali metal cation affinity and the extractabilities are much higher than that for the corresponding calix[4]arene tetra-Et ester and homocalix[4]arene tetra-Et ester. High Li<sup>+</sup> and Na<sup>+</sup> extractabilities were obsd. for the N,N-diethylaminocarbonyl tetraderiv. However, no significant high ion selectivity for alkali metal cations was obsd. in tetraamide. <sup>1</sup>H-NMR titrn. of tetraamide with KSCN clearly demonstrates that a 1:1 complex is formed with retention of the original symmetry to be conformationally frozen on the NMR time scale.

L21 ANSWER 55 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 133:222710 CA

TI Molecular design and synthesis of a calix[6]crown-based lithium-selective ionophore

AU Chen, Y.; Yang, F.; Gong, S.

CS Department of Chemistry, Wuhan University, Wuhan, 430072, Peop. Rep. China

SO Tetrahedron Letters (2000), 41(24), 4815-4818

AB Several 1,4-bridged calix[6]arene tetraesters were prepd. from 1,4-bridged p-tert.-butylcalix[6]crown-4's by etherifying with Et bromoacetate. It was found that the 1,4-triethylene glycol-bridged p-tert.-butylcalix[6]crown-4 tetra-Et ester and the 1,4-(1,2-diethoxyphenyl)-bridged p-tert.-butylcalix[6]benzocrown-4 tetra-Me ester exhibit very high selectivity toward lithium and sodium ions, resp. The ion selectivity is very sensitive to the structure of polyoxyethylene spacer and the ester moiety.

L21 ANSWER 56 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 133:150538 CA

TI Synthesis and alkali metal picrate extraction studies of p-tert-butylcalix[4]arene crown ethers bridged at the lower rim with pyridyl

units

AU Marchand, Alan P.; Chong, Hyun-Soon; Takhi, Mohamed; Power, Trevor D.  
CS Department of Chemistry, University of North Texas, Denton, TX, 76203-5070, USA

SO Tetrahedron (2000), 56(20), 3121-3126

AB The syntheses of pyridyl contg. **calix[4]arene** receptors that adopt the cone conformation are reported. The complexation properties of these host mols. were estd. via the results of alkali metal picrate extn. expts. A singly-bridged bis-**calix[4]arene** does not appear to be an efficient alkali metal picrate extractant. A doubly-bridged bis-**calix[4]arene**, displayed elevated extn. avidity toward Rb<sup>+</sup> and Cs<sup>+</sup> picrates when compared with that of the singly-bridged **calix[4]arene**. A pyridyl contg. **calix[4]arene-crown-5**, showed improved avidity and selectivity toward extn. of K<sup>+</sup> and Rb<sup>+</sup> picrates vis-a-vis the corresponding behavior of singly- and doubly-bridged **calix[4]arenes**.

L21 ANSWER 59 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 132:347549 CA

TI Synthesis and Metal Ion Complexation Studies of Proton-Ionizable Calix[4]**azacrown** Ethers in the 1,3-Alternate Conformation

AU Kim, Jong Seung; Shon, Ok Jae; Ko, Jong Won; Cho, Moon Hwan; Yu, Ill Yong; Vicens, Jacques

CS Department of Chemistry, Konyang University, Nonsan, 320-711, S. Korea

SO Journal of Organic Chemistry (2000), 65(8), 2386-2392

AB A series of novel N-chromogenic **calix[4]arene azacrown** ethers such as I were synthesized as selective extractants of potassium ion. I was prepd. by reacting dipropoxybis(chlorooxapentyl)**calix[4]arenes** with p-toluenesulfonamide in the presence of potassium carbonate; reductive removal of the tosyl group and alkylation of the amine with 2-hydroxy-5-nitrobenzyl bromide gave **calix[4]arene azacrown** ethers such as I in moderate yields. I shows high transport selectivity for potassium over other metal ions as shown by two-phase extn., bulk liq. membrane, and <sup>1</sup>H NMR studies on a ligand-metal complex. It is assumed that the OH of the chromogenic group attached on nitrogen can assist the complexation by encapsulation of the metal.

L21 ANSWER 73 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 132:236867 CA

TI New calixcrown-type ionophores derived from all possible regioisomers of rigid **calix[4]arene**

AU Okada, Yukihiro; Mizutani, Manabu; Ishii, Fuyuhiko; Nishimura, Jun

CS Department Chemistry, Gunma Univ., Kiryu, 376, Japan

SO Synlett (2000), (1), 41-44

AB Three regioisomers attaching diisopropyl groups of rigid **calix[4]arene** analog were prepd. by two synthetic methods. They were successfully transformed to new ionophores having different size of **crown** ethers. The new ionophores selectively extd. alkali metal ions.

L21 ANSWER 86 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 130:281817 CA

TI Syntheses of lower rim 1,3-crowned **calix[6]arenes** and their

complexation abilities toward cations

AU Chen, Yuanyin; Li, Jiansen; Xin, Jun; Zhong, Zhenlin; Gong, Shulin; Lu, Xueran

CS Department of Chemistry, Wuhan University, Wuhan, 430072, Peop. Rep. China

SO Synthetic Communications (1999), 29(4), 705-711

AB Lower rim 1,3-crowned **calix[6]arene** and its derivs. were prepd. in a one-pot process. In the presence of a high excess of Na<sub>2</sub>CO<sub>3</sub>, p-tert-butylcalix[6]arene (I) reacted with diethylene glycol in MeCN to give the lower rim 1,3-bridged calix[6]**crown**-3 II (R = H; X = CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>) (III) and its bis(tosyloxyethoxyethyl) ether deriv. II (R = TsOCH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>; X = CH<sub>2</sub>CH<sub>2</sub>OCH<sub>2</sub>CH<sub>2</sub>) as well as the mono 2-[2-(tosyloxy)ethoxy]ethyl ether of I. The distribution of the three products varied with the amt. of base used and other exptl. conditions. III exhibits high complexation selectivity towards Li<sup>+</sup>. The 2-[2-(tosyloxy)ethoxy]ethyl ether of I may be the first example of an ionophore with high Et<sub>2</sub>NH<sub>2</sub><sup>+</sup> selectivity.

*Adams*

L21 ANSWER 99 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 130:95546 CA

TI Calix[4]amidocrowns and calix[4]amidocryptands bridged at the wide rim

AU Wasikiewicz, Wojciech; Rokicki, Gabriel; Rozniecka, Ewa; Kielkiewicz, Jędrzej; Brzozka, Zbigniew; Boehmer, Volker

CS Fac. Chem., Warsaw Univ. Technol., Warsaw, PL-00664, Pol.

SO Monatshefte fuer Chemie (1998), 129(11), 1169-1181

AB<sup>1</sup> New macrobicyclic calix[4]amidocrowns and macrotricyclic calix[4]amidocryptands were obtained by reaction of a **calix[4]arene** contg. 2 distal acid chloride groups at the wide rim with appropriate diamines. Their ionophoric properties were checked in PVC membranes. The calix[4]amidocrowns did not alter significantly the selectivity of the membranes towards different alkali metal and alk. earth metal cations. The calix[4]amidocryptands, however, showed significant Li<sup>+</sup> over Na<sup>+</sup> selectivity.

*Burns*

L21 ANSWER 109 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 130:104365 CA

TI Chromoionophores based on crown ethers and related structures for alkali metal ion sensing in aqueous media

AU Hayashita, Takashi; Teramae, Norio; Kuboyama, Toshiharu; Nakamura, Shigeo; Yamamoto, Hiromasa; Nakamura, Hiroshi

CS Department of Chemistry, Graduate School of Science, Tohoku University, Sendai, 980-77, Japan

SO Journal of Inclusion Phenomena and Molecular Recognition in Chemistry (1998), 32(2-3), 251-265

AB A review with 27 refs. Recent progress in chromoionophores based on (1) spherand and hemispherand, (2) cryptand, and (3) dibenzo-16-**crown**-5 and **calix[4]crown** which selectively respond to alkali metal ions in aq. media is reviewed in relation to their mol. structure and photometric function. The design concept of the chromoionophores for colorimetry in aq. media is discussed in the light of their acid dissocn. and metal **complex** formation equil.

L21 ANSWER 128 OF 199 CA COPYRIGHT 2004 ACS on STN  
AN 127:176250 CA  
TI Synthesis, structure and alkali metal ion binding properties of a  
podand polyether derived from **calix[4]arene**, 5,11,17,23-tetra-tert-  
butyl-25,27-di(phenylmethoxy)-26,28-di(2'-methoxyethoxy)**calix[4]arene**  
AU Abidi, Rym; Harrowfield, Jack M.; Skelton, Brian W.; White, Allan H.;  
Asfari, Zouhair; Vicens, Jacques  
CS Faculte Sciences, Universite Bizerte, Zarzouna-Bizerte, 7021, Tunisia  
SO Journal of Inclusion Phenomena and Molecular Recognition in Chemistry  
(1997), 27(4), 291-302  
AB The ligand 5,11,17,23-tetra-t-butyl-25,27-di(phenylmethoxy)-26,28-di(2-  
methoxyethoxy)**calix[4]arene**, designed as an analog of some calixcrown  
species in order to evaluate possible origins of their selectivity in  
alkali metal ion binding, has been synthesized and structurally  
characterized by X-ray crystallog. The crystals are monoclinic, P21/n,  
a = 15.940(6), b = 19.388(5), c = 20.020(5) Å, β = 109.10(2) deg., Z =  
4, conventional R on |F| being 0.073 for 3454 independent, 'obsd.' (I >  
3σ(I)) reflections. NMR studies in 1:1 CD3CN/CDCl3 solvent showed that  
the ligand exerts a strong preference for the lighter alkali metal ions  
(Li<sup>+</sup> and Na<sup>+</sup>) contrary to the binding behavior of known calix **crowns**.  
This may reflect interactions restricted to the lower rim donor atoms  
without concomitant interaction with the **calixarene** π-electrons, perhaps  
because the latter interactions are substituted by those with the  
benzyl group π-electrons.

L21 ANSWER 134 OF 199 CA COPYRIGHT 2004 ACS on STN  
AN 126:115235 CA  
TI Chromogenic Reagents  
AU Dolman, Mark; Mason, Andrew J.; Sandanayake, K. R. A. Samankumara;  
Sheridan, Andrew; Sholl, Alastair F.; Sutherland, Ian O.  
CS Department of Chemistry, Univ. of Liverpool, Liverpool, L69 3BX, UK  
SO Analyst (Cambridge, United Kingdom) (1996), 121(12), 1775-1778  
AB A no. of compds. are described which are highly selective chromogenic  
reagents for cations of biol. importance including Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>, and  
Ca<sup>2+</sup>. These reagents are based upon phenolic cryptands with an  
azophenol chromophore incorporated into their structures, metal  
complexation is accompanied by deprotonation of the phenolic group and  
a substantial change in the wavelength of max. light absorption. The  
cryptand structures are generally prep'd. by a novel synthetic route  
involving reaction of a diaza **crown** ether with 2,6-  
bisbromomethylanisole although in one case, for K<sup>+</sup> selection, a bridged  
**calix[4]arene** is used. Two of the new phenolic cryptands are also  
highly sensitive reagents for Pb<sup>2+</sup>. A further variation in the  
structure to give a phenolic cryptand analogous to the well known  
solvatochromic Reichardt's dye reagent provides a reagent which is  
highly selective for Na<sup>+</sup> and a response that depends upon solvent  
polarity.

L21 ANSWER 144 OF 199 CA COPYRIGHT 2004 ACS on STN

AN 126:83606 CA  
TI Luminescence of  $\text{Eu}^{3+}$  and  $\text{Tb}^{3+}$  complexes of new macrobicyclic ligands derived from p-tert-butylcalix[4]arene  
AU Sabbatini, N.; Casnati, A.; Fischer, C.; Girardini, R.; Guardigli, M.; Manet, I.; Sarti, G.; Ungaro, R.  
CS Dipartimento di Chimica G. Ciamician' dell'Universita, Via Selmi 2, 40126, Bologna, Italy  
SO Inorganica Chimica Acta (1996), 252(1-2), 19-24  
AB Several new **calix[4]arene-crowns** were synthesized and their complexation of the  $\text{Eu}^{3+}$  and  $\text{Tb}^{3+}$  ions was studied to obtain compds. exhibiting metal luminescence. Two ligands gave no indication of complex formation with lanthanide ions but three were able to sensitize  $\text{Eu}^{3+}$  and  $\text{Tb}^{3+}$  luminescence. A high metal luminescence quantum yield was obtained for the Tb complex with one **calixarene-crown**. The selectivity of these ligands towards alkali metal ions also was assessed.

=> log y

STN INTERNATIONAL LOGOFF AT 14:41:16 ON 29 DEC 2004